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Among the contents of next week's issue (No. 171) will be the following articles:

Hamamelis Japonica. (With figure.)
By Professor Sargent.

Sir Christopher Wren as a Gardener.
By Mrs. Schuyler Van Rensselaer.

Ravenea Hildebrandtii. (With figure.)
By W. Watson.

Notes on Shrubs.
By J. G. Jack.

The paper will contain an illustration of Ravenea Hildebrandtii, from a photograph, and a figure of Hamamelis Japonica, from a drawing by Mr. C. E. Faxon.

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The Swamp White Oak.

IN eastern North America there is a peculiar group of Oaks known generally as Chestnut Oaks on account of the fancied resemblance of the leaves of one of their number to those of the Chestnut-tree. They are White Oaks, that is, they belong to the section of the genus in which the fruit matures in one season; and they all have coarsely sinuately-lobed leaves, more or less pubescent and white on the lower surface, and, with one exception, pale, scaly bark. The exception is the Rock Chestnut Oak, which grows on the dry banks of streams and in dry upland forests; on this tree the bark is deeply divided into broad rounded ridges, and is dark-colored like the ordinary bark of Black Oaks. The cup of the fruit of the Chestnut Oak is hemispherical, usually hoary, and encloses nearly one-half of the large oblong acorn, which is sweet and more palatable than the fruit of other American Oaks.

The upland Chestnut Oak was known to Linnæus, who called it *Quercus Prinus;* the elder Michaux, who studied our eastern Oaks conscientiously, and published, or, at least, supplied, the material for an admirable book about them, knew all the Chestnut Oaks. He considered them forms of the Linnæan species, and in all the old works on American trees they are spoken of as varieties of that species. Two of the Chestnut Oaks grow in low, wet situations, near the borders of swamps or pond-holes, and, although they do not grow naturally in swamps, are usually known as Swamp White Oaks. One of these trees belongs to the north, where it is found from Canada to the Potomac and along the mountains as far north as northern Georgia, and from the Atlantic sea-coast to Iowa and Missouri. This is the tree which botanists now generally call *Quercus bicolor;* it is represented or replaced in the south by a larger and finer tree, one of the noblest and most beautiful of the deciduous trees of eastern North America, a second species of Swamp White Oak—the *Quercus Michauxii.* This statement needs, perhaps, some qualification. Extreme forms of the northern, and of the southern, Swamp Oaks are distinct enough, but in the region where the two species mingle—in southern Delaware and in Virginia—it is not so easy to distinguish them, and one appears to pass gradually into the other. These intermediate forms led Dr. Englemann, the most careful student of American Oaks we have ever had, to believe that the two trees should be regarded as varieties of one species. But this is a subject which need not be discussed at this time, our object now being to call attention to the beauty and value of the northern tree as a good subject for care when it is found growing naturally, or for cultivation where proper conditions can be supplied for it.

The Swamp White Oak in its young state, and until it has reached the height of twenty or thirty feet, develops short, rather stout, branches, which grow almost at right angles with the stem, and form a narrow, formally pyramidal head; as the individual grows older the formal habit is generally lost, and an irregularly spreading top is developed, which is broad or narrow, as it has abundant or scanty room in which to enlarge. The lower branches, in its youth at least, are remarkably persistent and generally pendulous on this tree, or intricately contorted toward their extremities. This habit is well shown in the portrait (see page 246) of a tree thirty or forty years old, made in Massachusetts in winter by Dr. William H. Rollins, to whom we are indebted for the privilege of publishing it. The bark of young trees separates into large, thin, brown, papery scales, which remain for a long time on the trunk and branches, and give them a ragged appearance which other young Oaks do not present. The pendulous habit of the branches and this peculiarity of the bark make the Swamp White Oak, as long as it is young, one of the easiest of all our trees to recognize in winter. The bark of large trees is rough, with thick, pale, flaky scales not very unlike those of the White Oak, although usually rather darker-colored.

In summer the Swamp White Oak is easily recognized by the leaves. These are oblong or oblong-ovate, with a narrow wedge-shaped base and are very coarsely crenately-serrate, especially above the middle, where there is often, on each side, a deep sinus; they are six or eight inches long and three or four inches broad, and are smooth and dark green on the upper surface and pale or sometimes nearly white on the lower surface, which is covered usually with fine pubescence. The foliage of no other Oak of the northern states is more beautiful. When the leaves unfold, the upper surface is sometimes pale and sometimes bright red, and the lower surface is thickly coated with white tomentum. The contrast between the colors of the upper and of the lower surfaces of the young leaves makes the Swamp White Oak a delightful object in early May, when the branches are draped with the long catkins of staminate flowers. It is hardly less beautiful in summer, when the wind plays through the foliage and turns to the light first the pale under-surface of the ample leaves and then displays the dark green and glossy covering of their upper surface. In autumn, just before falling, the leaves turn yellowish brown and never assume the brilliant colors put on by many of the Oaks of eastern America. The fruit, which is not produced very abundantly, is borne singly or in pairs on stalks two or three inches long and much longer than the leaf-stems. The upper scales of the cup are pointed and sometimes form a delicate fringe-like margin; the acorn is an inch long, rather obtuse and bright chestnut-brown when ripe. Squirrels and hogs find it to their liking, and a man, if he was very hungry indeed, might get some satisfaction from eating it; it is not as sweet and much less palatable than the acorn of the southern Swamp Oak.

The wood of the Swamp White Oak is perhaps even more valuable than that of the White Oak; it is hard, strong, close-grained, very tough, and is not distinguished from White Oak by timber merchants. The two woods are used for the same purposes.

The Swamp White Oak is a common tree in some parts of the country, especially in eastern New England and in New Jersey, and in some parts of Pennsylvania. It is found usually with the Swamp Maples and the Tupelo, the White Ash and the Shellbark Hickory, and south of New England with the Pin Oak (*Quercus palustris*) and the Liquidambar. It grows occasionally to a great size. Individuals, a hundred feet high, with trunks seven or eight feet in diameter, can be found; such specimens are rare, however, and it is not usual to see this tree more than half this size. The greatest Swamp White Oak of which any record has been preserved is known as "The Wadsworth Oak." It stood on the intervale of the Genesee River in western New York, on the Wadsworth estate, where many large Swamp Oaks still exist. Mr. S. B. Buckley published, many years ago, a note on this tree in the *American Journal of Science and Arts*, from which it appears that in July, 1851, when he visited it, the trunk varied little in size from the ground to the branches, and that it had an average circumference of twenty-seven feet. Its smallest circumference was twenty-four feet. "It was situated in a pasture, and the ground was bare and hard beneath it from the tramping of cattle and visitors. The big tree seems fated soon to die." The prediction, unfortunately, came true, and a few years later this tree, the pride of all the country round, was undermined and washed away by the gradual changing of the bed of the river near whose banks it had stood for centuries.

The Swamp White Oak is rarely planted. It bears transplanting, however, better than most White Oaks, and comparatively large specimens can be moved if care is taken in the operation. It is better, however, as it is in the case of all White Oaks, to plant the acorn or a small seedling where the tree is to grow permanently. Transferred to upland the Swamp White Oak grows rapidly and thriftily, although it is not probable that it will make a very large or long-lived tree, except in deep, moist soil in the neighborhood of streams or swamps. When such positions are available there is no better tree to plant, and when the Swamp White Oak is found growing naturally it will repay the small amount of care and labor required in cutting away any less valuable trees which encroach upon it and interfere with its characteristic development.

The western Arbor-vitæ, of which a portrait was published in these columns a few weeks ago, seems destined to disappear from the face of the earth if the shingles made from the wood of this tree continue to grow in popularity as rapidly as they have in the last two or three years. Nearly a hundred mills devoted exclusively to making shingles from the Red Cedar, as the western Arbor-vitæ is called, have recently been erected in western Oregon, and large quantities of the shingles are manufactured also by hand and by machines attached to saw-mills. It has been found that these shingles are very durable, and that practically the action of the elements alone has little effect on them; and they are now supplanting the Pine shingle of Michigan, the Cypress shingle of the south and the Redwood shingle of California. They are sent all over the United States, the transcontinental traffic companies fostering the industry by advantageous rates; and large numbers, especially those made by hand, are sent to the Hawaiian Islands and to other Pacific ports.

The combined daily product of the fifty shingle-mills controlled by the Northern Pacific Consolidated Shingle Company is said to be 3,500,000 shingles, and probably as many more are made from this wood in Oregon and Washington by individuals and in mills uncontrolled by this company. The supply of this timber is still large, but the region where the western Arbor-vitæ flourishes is not extensive, and it is only a matter of time when the last of these trees will have fallen under the axe of the timber-cutter.

Ivy in an Old French Garden.

THE article recently published in these pages, on the Renaissance Colonnade in the Parc Monceau, may well have recalled to many readers memories of other French parks and gardens where Ivy is most beautifully used. One such picture is especially vivid in my own mind, although it was received in the immediate vicinity of the great cathedral of Chartres, where, one might easily suppose, architectural pictures would crowd out all besides.

When we stand in front of the splendid sculptured porch which furnishes the north transept of the cathedral we have a glimpse off to the left, through a huge ornamental iron gate, of a garden shadowed by lofty graceful trees. Perhaps it is not always possible to pass this barrier, for we were told that the Bishop, who had recently died, was old and cross, and permitted no one to come within sight of the windows of his palace. But when we were at Chartres this unchristian Bishop, fortunately, was dead, and his successor had not yet arrived. So we got into the garden, not, indeed, through the gate of honor, but by a little side entrance at the further end, near the south-east corner of the church. Entering at this point, however, our first view of the quaint, delicious, out-of-the-world spot was all the more delightful.

The garden forms a long narrow rectangle, lying, like the cathedral and the streets beyond it, high above the more eastern portions of the town. At the end where we stood, and all along the eastern side, one looked over a stone parapet far down a massive wall into streets and court-yards, and far above picturesque masses of roofs and a winding little river to the distant hills. Above the other side, to the west, towered the apse of a great chapel which is attached to the end of the cathedral; and at the further end of the garden stretched the white façade of the episcopal palace, with a terrace running in front of it, a few beds of flowers close beneath, and long rows of clipped shrubs in pots. And this was seen between two rows of great ancient trees, whose branches almost met overhead and whose trunks were almost concealed by thick shrubberies, while all the space between them was filled by a quiet expanse of grass. The paths which lead from one end of the garden to the other lie outside these trees and shrubberies, close to the parapet on the one side and close to the chapel on the other. No line of gravel or bed of flowers breaks the harmonious simplicity of the central area. The trees are not planted with formal regularity, though the canopy of their foliage has become uniform and symmetrical; and one almost forgave the selfish isolation of the defunct Bishop, reflecting that, perhaps, had he cared more for company, he would have instructed his gardener to trim up the shrubs which now grew in beautiful luxuriance, trailing their branches on the rather rankly growing grass. It was a picture of the utmost beauty, and if it looked as though no human hand had touched it for many years, this only increased its poetical charm and added that touch of pathos which always seems to befit the neighborhood of a great ancient church.

But what I wanted especially to explain was, that the final finishing touch of beauty was given by the luxuriance of the Ivy which ran riot in almost every part of the garden, yet in its wildest freaks seemed to have been guided by the hand of some non-human artist. It clambered up the trunks of the great trees until it clambered out of sight among their own foliage. It wove each trunk to the stems of the shrubs beneath it, and then it ran out in long festoons and streamers amid the grass until it was impossible to say where the shrubberies ended, where the lawn began. Beautiful, indeed, were the graceful garlands it wove, and beautiful the contrast of their dark shining green with the paler green of the shrubs and the grass. Admiration changed at last to envy, thinking what one would give in an American country home for a growth of Ivy like this, planted, perhaps, a hundred years ago (I should imagine this to be about the age of the garden, as it is not formal in design), and growing since with only shade, dampness and a fertile soil to dictate its course. One felt that such a place as this ought to be seen, to be enjoyed, to be used. And yet, had it always been used and enjoyed, had its most recent owner been something different from a nervous, ecclesiastical recluse, would its pathetic loveliness have so enchanted the eyes of our lucky band of tourists?

New York. *M. G. Van Rensselaer.*

In those vernal seasons of the year when the air is calm and pleasant, it were an injury and a sullenness against Nature not to go out and see her riches, and partake in her rejoicing with heaven and earth.

John Milton.

Native Shrubs of California.—V.

ALTHOUGH the cultivated Cherries, natives of the Old World, thrive better on the Pacific than on the Atlantic slope of our continent, the Atlantic side is richer in native species, for while, between Canada and the Carolinas, as many as seven or eight kinds of wild Cherries are indigenous, an equal extent of Pacific coast territory yields but four or five, and all of these are found within the limits of California. *Cerasus emarginata*, Dougl. (Hook. "Fl. Bor., Am.," i., 169), our best native type of the Cherry genus, is, however, limited in California to the northern counties, and even there fails to attain those tree-like dimensions and that symmetry of outline which it develops in the wooded country of Oregon and Washington. But, whether great or small, the species nowhere degenerates into a scraggy or shapeless bush. Seldom less than fifteen feet high, the branches are ascending, and the general outline of the head is more or less conical. The very finest specimens of this species which I have seen are on one of the streets of Portland, Oregon, where they were planted years ago for shade and ornament. Some of these are about forty feet high, and are so much like the cultivated Cherry-tree in foliage and form that I should perhaps have passed them by as exotic trees had not the ground beneath been strewn with the fallen fruit, which revealed at a glance the native species. The fruits are small for true cherries, of a dark dull red, and intensely bitter. The flowers are borne in umbels, but are small. At Lake Pend d'Oreille, in north-eastern Idaho, where, in a somewhat reduced state, the species is common, I observed that many of the flowers had been bipistillate, and that the drupes were often two to each flower; a circumstance, perhaps, not rare in cultivated Cherries, but which, occurring spontaneously in a wild tree of western America, cannot but suggest a still closer relationship between our western Cherries and their curious relative, the Oso Berry (Nuttallia), in which the drupes are normally from two to five to the flower.

Some years ago Dr. Kellogg, under a misunderstanding, made a synonym for the species, calling it *C. glandulosa*. He had been taught by authority that the following, much more common in California, was the true *C. emarginata:*

Cerasus Californica, Greene ("Fl. Fr.," 50). A mere shrub of unsymmetrical habit, often six or eight feet high, with a very smooth and shining brown and dotted bark; it is entirely distinct from *C. emarginata* in size, habit, and, more particularly, by the characters of its foliage. Its fruit is very small, of a clear and almost translucent bright scarlet, the flesh so keenly bitter—the bitterness so penetrating and permanent in one's organs of taste—that no one is likely to make a second experimental test of its qualities. The bush is common in middle California, among the hills of the coast range and of the Sierra, extending northward beyond Mount Shasta.

Cerasus demissa, Nutt. (Torr. and Gray, "Fl.," i., 411). This, the western Choke Cherry, very nearly allied to the Atlantic coast shrub or tree known as Choke Cherry, is not very prevalent in many parts of California. The acidulous fruit, hanging in somewhat inviting rich red racemes, is astringent when fresh; but cooking dispels this unpleasant quality, and a marmalade, entirely palatable, with a fine cherry flavor, is commonly made from it in most places where it is at all plentiful.

Cerasus ilicifolia, Nutt. (Hook. & Arn. "Bot. Beech.," 340). We seem to have on the American continent only two representatives of the Old World Laurel-cherry group of trees. *C. Caroliniana* is the Atlantic one, *C. ilicifolia* the Pacific. In its distribution, ours, like its eastern analogue, is southern. *C. ilicifolia* does not appear to extend to the northward of San Francisco Bay, and here, at its northern limit, it does not make much of a tree, but is low and shrubby. Its broad, shining, spinose-toothed, evergreen leaves render it useful, as well as ornamental, for hedges, and it has here and there been planted for that purpose. Southward, in the counties of Monterey and San Luis Obispo, it becomes a low, well-rounded tree of compact habit, with a clean trunk, showing a rough very dark bark. The fruit of the species is nearly an inch in diameter, of round outline, but distinctly compressed laterally. The sweet and agreeable pulp is very thin, the stone large, thin and soft for that of a cherry, and the kernel is of so mild a bitter as to be scarcely unpalatable—quite comparable with that of the Bitter Almond. On the island of Santa Cruz, off Santa Barbara, and elsewhere in that archipelago, the species comes out with narrow and perfectly entire foliage. This was at first thought to be specifically distinct from the tree of the mainland, and so like the West Indian *C. occidentalis* that it was so referred. But specimens growing on the grounds of the University, now five years old, from seed of insular trees, up to this time have shown only the notched and Holly-like leaves of the ordinary *C. ilicifolia*. It should therefore, at most, be made only a variety, *integrifolia* (Britton), of *C. ilicifolia*.

University of California. *Edward L. Greene.*

An Oak Scale.

DURING the meeting of the New Jersey State Horticultural Society, Mr. E. P. Beebe, of Elizabeth, New Jersey, brought a small branch of Oak, densely covered with round, clear, golden-yellow scales, and stated that the entire tree was as fully infested. The tree is isolated, in a garden plot in the city itself, and is an old Swamp White Oak. The attack was first noticed during the summer of 1890, but it must have existed some time before. Apparently no other trees in the vicinity are so infested. The scales (see Fig. 43) are either round or a little oval, densely clustered, especially on the smaller twigs, but they do not spare even the older wood. They are from ·04-·08 of an inch (1–2 mm.) in diameter and slightly convex, hard and brittle. Beneath the scale there is a distinct, cup-like depression, extending not only through the bark but indenting the wood itself. I recognized the specimens at once as *Asterodiaspis quercicola*, Bouché, a European species, which Mr. L. O. Howard, of the United States Department of Agriculture, had exhibited at the Toronto meeting of the American Association for the Advancement of Science, from the European Oaks in the Department grounds. In the report of the Department for 1880, Professor Comstock, then United States Entomologist, described the species. According to him, the male scale is oval rather than round, and only about half the size of that of the female. He had not found any male scales, and copied the description from the European authors. In none of the specimens seen by me do I identify a male, and the differences are either less than described, or that sex does not occur very abundantly. Professor Comstock states that the scales are "upon the imported Oaks in the Department of Agriculture Grounds at Washington. The species is not a common one in Europe, but is occasionally quite destructive to an individual tree." I have seen no record of the occurrence of this scale other than at Washington, and its appearance at Elizabeth, on a native species of Oak, is decidedly interesting. I recommended a thorough winter spraying with the kerosene emulsion, one to ten, with the view of destroying whatever of life existed in or under the scales, and I would suggest that a lookout for this pest be kept on ornamental trees. If it be discovered the treatment should be radical. If not too wide-spread, all infested twigs should be cut and burnt. If that be impracticable the trees should be thoroughly sprayed with the kerosene emulsion when clear of leaves. Trees so badly infested as that from which my specimens came will inevitably succumb. The figure gives some idea of the appearance of an infested twig, and most of the specimens showed a greater number of scales than that figured. They are on all sides of the twigs and branches.

Fig. 43.—An Oak Scale.

Rutgers College. *John B. Smith.*

How We Renewed an Old Place.

VII.—A NEW PERENNIAL GARDEN.

A LITERARY man, who paid his only visit to Scotland in the winter-time, remarked that he realized more fully than ever before how great was the genius of Sir Walter Scott, which had given world-renown for picturesqueness to those low, round, bare, uninteresting hills, the Trossachs. Lacking that genius, I am somewhat dismayed at making my very unimportant little garden the subject of a paper. Our late, cold springs render it rather a dreary object of contemplation even in the month of May, and with only the power of words to help the reader's enjoyment, I shall have to ask indulgence for the meagre record of its very simple charms.

Mrs. Carlyle used to tell a story of an Irish prison that was to be built out of the stones of an old one, while the prisoners were to be kept in the old jail until the new one was com-

pleted. This tale suggests our fashion of constructing a new garden out of the former one, and in our case the prisoners showed a decided preference for the original institution, and were with great difficulty persuaded to leave it. We started out with no very definite plan beyond killing two birds with one stone, always a desirable object when one is short-handed, and the results scarcely merit a place in so eminent a horticultural sheet as this, except to point a moral for the editor, whose text we are proud to be, and to adorn his next account of how well the knowing ones would have managed it. But you shall hear, and we can at least serve as a warning.

While the house at Overlea was building, the carpenters kept their tools in a part of the old dwelling that was still standing, and their constant journeys to and fro, between the knoll and the workshop, wore a narrow winding path, along which we had a flower-bed dug, to put such roots in as we wished to bring with us from the rented place that we were occupying, and also to serve as a home for such plants as we might dig up about the farm. Some sprigs of Box, broken from the arbor, and set in the soil at the edge of the bed, took root and made a rough border, and here, in August, I transplanted Lily-bulbs, and a little later put in such perennials as needed to be set out in the fall.

Between this flower-bed and the street were three rows of straggling old Pear-trees that gave some suggestion of possible fruitfulness, though it seemed likely that they were too old to profit by pruning. They had been famous in their day, and still preserved the remnants of a reputation, though more modern varieties have borne away the palm in newer gardens. But Bartletts and Sheldons and Seckels will never be out of date, and there are others, the very names of which the old settlers have forgotten, which still yield sweet and luscious fruit, when the weather and the insects permit. Half-dead they seemed when we first went to work at them, cutting away the dead branches and scraping their mossy trunks, to the infinite disturbance of the insects that had clustered there for warmth, and we recognized that only strong methods would revive them.

We needed sods for the terraces we were making, and so began by removing the turf around the trees, leaving narrow strips of grass to walk upon. This furnished us with three wide beds, which we fertilized heavily with rich compost and wood-ashes, the surface being tilled with great care, keeping the edge of the spade turned toward the trunk to avoid cutting off the rootlets of the trees. A memory of an old garden in which I had played when a child, where Pear-trees grew among the flowers, induced me to think of utilizing these broad fertile spaces for perennials. The Pear-trees were at that time doubtful as fruit-producers, but they would afford a grateful shelter from the hot sun when we were working among the plants, and their sparse foliage would hardly interfere greatly with the flowers.

In the spring a generous friend sent me a box of hardy plants, which were set out at random, as they came without labels, and many of them were unfamiliar to me. I do not find that they interfere much with the Pear-trees, which, under this steady cultivation, yield more of their fine old-fashioned fruit than we know what to do with, for pears are a drug in this market and can hardly be given away. The Pear-trees certainly do not hinder the growth of the sturdy perennials, which multiply enormously, so that every spring and fall there are boxes full of them to be given away. A nurseryman, who came last year to set some Strawberry-plants, declared that, if properly divided, there were roots enough there to stock an acre.

Such strong, showy plants as the Iris, the Foxglove and the Giant Evening Primrose flourish admirably, while Phlox and Hollyhocks and Columbines and Spiræas encumber the ground.

There is a huge Oriental Poppy that is a gorgeous spectacle, with its rich blue-green velvet robes and its silken headgear of scarlet and black, producing all alone the effect of a procession, as Brett Harte once said of Roscoe Conkling.

Smaller Poppies come up of their own accord, some single, some double, as the fancy takes them, and there is a wild array of Larkspurs and Coreopsis and Sweet Williams all summer. In the spring the variegated Thyme comes up promptly, followed closely by English Daisies and Moss Pinks, and Pansies and Violets, white, blue and yellow. The Giant Solomon's Seal rings its green bells over the heads of the tiny Bellwort; and all summer the Lilies and Pæonies and Spiderworts fight for possession of the ground, while the perennial Peas and Calendulas and Marigolds linger there till the last frost-horn blows.

The collection is not very choice, and, beyond a periodical struggle with the weeds, which try to grow as rampantly as the flowers, it gets not very much attention; but it makes a fine show from the street, and from the veranda which looks down upon it. Any minute effects would be wasted here, and we do not extend its area, which we might readily do, because it already requires more attention than we are willing to spare from the shrubs and trees that we are hurrying along upon the lawn, and which, consequently, take all our best energies, as well as the lion's share of food. In short, the flower-garden takes what it can get—copes more or less successfully with its own weeds, and possibly is more satisfactory than if we took more pains with it, and so were liable to disappointments. It is not at all well adapted to annuals, even Mignonettes and Asters, which are sown every year, for the stronger plants rob them of their proper nutriment; but I have future plans for a parterre in that neighborhood which shall have fitting accommodation for all the sweet old-fashioned kinds of yearly flowers.

Supplemented by the old garden, the new will even now at any season afford a fragrant and showy nosegay, such as our grandmothers liked for a beaupot, and there is always a mass of color under the Pear-trees until late in November, when the cold pinches the very last Calendula. The neighborhood of the salt-water makes this garden cold, and slow to awake in spring; but, on the other hand, it modifies the temperature in the autumn, so that it escapes the early frosts, and, under the shelter of the trees, the flowers last long after those upon the high ground about the house have withered and fallen.

There is a sheltered corner, backed by a mass of Lilacs and Mock Oranges, where I dream of seeing some day a fine clump of Rhododendrons and hardy Azaleas, though I have some doubts about a southern exposure being the very best thing for them; but the decorative effect from the house will be so good that we are disposed to make the attempt.

Hingham, Mass. *M. C. Robbins.*

New or Little Known Plants.

New Orchids.

Mormodes Lawrenceanum, Rolfe.—A fine species of this interesting genus, which was imported from New Granada by Messrs. Linden, L'Horticulture Internationale, Parc Leopold, Brussels, and flowered in that establishment during January last. It is allied to *M. Cartoni*, Hook., but has more acute segments and a markedly pubescent lip. The erect racemes bear numerous flowers, which have the sepals and petals lined with brown, on a paler ground, and the lip light ochre-yellow, with a few light brown spots. It is dedicated to Sir Trevor Lawrence, of Dorking, the possessor of one of the finest collections of Orchids in existence.—*Lindenia*, t. 273.

Zygopetalum Lindeniæ, Rolfe, is a very pretty Zygopetalum, much resembling *Z. rotratum* in habit, but belonging to a different section of the genus. It has large flowers, borne in twos and threes, on an erect raceme, the sepals and petals light rose color, the lip, with many radiating rose-purple lines, on a white ground. The large fleshy crest, which is purple in color, shows that it belongs to the section *Enzygopetalum*. It was discovered by Monsieur Bungeroth in Venezuela, and imported by Messrs. Linden, L'Horticulture Internationale, Brussels.—*Lindenia*, t. 275.

Cattleya × Parthenia, A. Bleu, is a very handsome secondary hybrid, raised from *C.* × *fimbriata*, crossed with the pollen of *C. Mossiæ*, by Monsieur Alfred Bleu, of Paris. The flowers are white, the disc of the lip bright yellow, and the front lobe light rose-purple, both disc and front lobe being veined with deeper purple. Different plants have flowered at various seasons of the year, from April to November. The mother-plant, *C.* × *fimbriata*, was raised from *C. intermedia*, crossed with the pollen of *C. Aclandiæ*, so that three species are involved in the parentage of the present hybrid.—*Lindenia*, t. 276.

Lælia anceps, var. holochila, Rolfe, is a distinct and very remarkable variety, with an entire lip; evidently a peloriate condition of the species. The sepals and petals are lilac, the lip light purple, with a white disc and some yellow at the base. The petals are rather narrow, and the lip elliptical-lanceolate, over two inches long by three-fourths of an inch wide. It was imported by the Liverpool Horticultural Company with *Lælia anceps morada*. There are several plants in existence, all showing the same character, and may all be subdivisions of one original clump.—*Gardeners' Chronicle*, April 4th, p. 426; Garden and Forest, April 15th, pp. 172, 173, fig. 31.

Cattleya × Vedasti, Perrenoud, is a hybrid raised in the collection of M. Perrenoud, of Paris, between *Cattleya Loddigesii* and a form of *Lælia pumila* (to which the name

"*Cattleya Pinelli marginata*" is affixed), the latter being the pollen parent. It flowered for the first time in November, 1889, from seeds sown in 1883. The flower is ten centimetres in diameter across the petals, light rose-purple, flaked with a slightly darker shade, the lip nearly entire, undulate, the front lobe crimson-purple, with a paler margin, the side lobes margined with light rose-purple, and the disc rather pallid with some purple veins.—*Orchidophile*, February, 1891, p. 48, with colored plate.

Kew. *R. A. Rolfe.*

Recent Plant Portraits.

THE *Botanical Magazine* for May contains a figure (t. 7172) of the trunkless *Yucca rupicola*, a native of western Texas, where it was first discovered by Lindheimer, and of northern Mexico as far south and west, at least, as Chihuahua. It is one of a group in which the leaf is margined with minutely horned teeth, and is a showy plant in flower, although, unfortunately, it has not proved hardy in northern gardens. It is interesting to note that it has now flowered in England in the open air—in the garden of Canon Ellacombe, at Bitton.

There is a figure of *Hermannia cristata* (t. 7173), a native of southern Africa, and rather a weedy-looking subject, although it is said to deserve a place in any conservatory, but which, however, is rather botanically curious than horticulturally beautiful. It is interesting in that it differs from all the other species of southern Africa, where the genus is very largely represented, and in approaching an American species, *Hermannia Texana*, in the broad crest of the capsule.

Wahlenbergia undulata appears on t. 7174. This is a widely diffused species from the Transvaal to the Orange Free State and southward to Plettenburg Bay, ascending an elevation of 6,000 feet on the mountains of Natal. Our correspondent, Mr. Watson, who visited southern Africa a few years ago and who brought home seeds with him, speaks of it as "growing in masses in marsh-lands, the stems supporting one another, and the whole forming a beautiful picture, suggestive of a group of Campanulas." It is said to be well adapted for pot culture as a hanging plant, as the branches descend on all sides, with ascending tips loaded with bright blue flowers.

There are figures also of *Pitcairnia Roezlii* (t. 7175), one of a large number of Pitcairnias with red flowers, which resemble one another closely in habit and structure. The species here figured is said to be one of the finest of them all; it is distinguished by distinctly petioled and comparatively broad leaves and long simple racemes of bright scarlet flowers, remaining in perfection for a long time. It is a native of South America.

Cælogyne Rossiana is figured on t. 7176. This is a native of Burma, and a not very showy species, although, as the editor points out, of considerable botanical interest.

Foreign Correspondence.

London Letter.

L'Horticulture Internationale, Brussels.

THIS powerful nursery company was founded four years ago on the nurseries of Monsieur John Linden, who had built up for himself a great reputation in Ghent, where during the greater part of half a century he occupied himself with the introduction and cultivation of beautiful exotic plants of all kinds. What Veitch, Low and several others were to English, Linden was to Belgian horticulture. But Ghent is provincial, and Monsieur Linden felt that Brussels could afford much greater opportunities for the success of his enterprise. His anticipations have been more than realized, for not only does his "Société Anonyme" include some of the most influential and the richest of Belgian amateurs, but the result of his venture has been to create among the wealthy residents in Brussels, as well as in Belgium generally, a love for Orchids which now bids fair to become at least as far-reaching as it is in England.

The director of the company is Monsieur Lucien Linden, his father retaining control only over the collecting and introducing of new plants. The nursery is very extensive; it is almost entirely devoted to the cultivation of in-door plants, and is planned in such a manner as to afford the best possible conditions for the healthy growth of the plants and at the same time the most enjoyable "show-room" for visitors. From the entrance to the stoke-holes everything in the establishment is in most admirable order, so that whether the visitor is inspecting the gigantic Palms and Tree Ferns in the corridors, the tropical Orchids or the admirably fitted workshop in which packing, cleaning, potting, etc., are performed, he cannot help being struck by the excellent order and cleanliness which prevail everywhere in this well-organized establishment. The nursery is a gigantic drawing-room, for it teems with beautiful objects which may be inspected with perfect ease and enjoyment. In my opinion, this nursery is one of the very best of the many attractions which the beautiful town of Brussels offers to visitors.

So much for L'Horticulture Internationale as an exhibition. The attractions for cultivators of exotic plants are, at least, as great as those of any other nursery known to me. The collection of Orchids is very extensive. All the best garden kinds are grown in enormous numbers and grown wonderfully well. Odontoglossums, Masdevallias, Cattleyas, Lælias, Vandas, Aërides, Dendrobiums—these are represented by thousands of plants, and all so full of vigor that one can scarcely refrain from purchasing. The houses, of which there are about thirty, are all very large, some exceptionally so. They are lightly built, with stages running close to and parallel with the roof-glass; the floor is of fluted tiles, and beneath the stages there are open tanks of soft water. The material used for shading is thin lath-blinds, so constructed as to allow the rays of sunshine to reach the plants directly, but never to shine on any one point long enough to burn. The compost used for almost every one of the Orchids is a mixture of finely chopped sphagnum, and chopped peat formed of the roots of Polypodium, not the Brake Fern commonly used in England. Water is supplied much more liberally than one usually sees, even for Orchids, some of the plants, such as Odontoglossums and Vandas, being liberally syringed overhead several times a day, even in spring. These are the conditions and material, so far as I could discover, which produce such marvelous results in this nursery. There remain still the skill and judgment of the cultivator. Monsieur Linden is his own grower, but he knows the wisdom of having a large staff of permanent assistants. Very few of the men employed by him are what are termed journeymen.

I must not overlook one very important item in the cultural arrangements of Monsieur Linden, namely, the use of tobacco to keep down insect pests, the curse and ruin of the large majority of Orchid collections. Tobacco is an old insecticide, but it is not often applied as Monsieur Linden applies it. In every house, resting upon the hot-water pipes and held in position by means of wire netting, is a layer of the refuse stalks and midribs of tobacco leaves, which, in Belgium, can be obtained at about seven francs the hundred kilos. This is wetted once or twice a day and the vapor which arises is consequently impregnated with nicotine, which permeates the whole atmosphere in the house and is inimical to insects. It does no harm to the most delicate plants, but it keeps down insects so well that Monsieur Linden finds it scarcely ever necessary to clean his plants. In this manner much labor is saved and the plants are kept clean. Moreover, the injury which is the almost inevitable result of scraping and sponging the leaves of delicate Orchids, is altogether avoided. In England tobacco is too expensive to be used in this way, but it would not be difficult to devise some means for obtaining the nicotine cheaply and in such a form as would satisfy the excise authorities. These are small details, perhaps, but upon them a great deal more depends than many growers imagine.

There is a house with about five thousand magnificent plants of *Angræcum sesquipedale*, only a few months imported, but as healthy in foliage and vigorous in root-action as though they had been there for years. Then a huge houseful of *Lælia purpurata*, many of them grand specimens. A large batch of healthy plants of *Saccolabium cæleste*, one of the most beautiful of blue-flowered Orchids, was pointed out as "all that remained" of a very large and successful importation of that very bad traveler. Of Odontoglossums I saw some of the most beautiful species and varieties that it has ever been my privilege to see. Their names were legion, their value, in many cases, almost fabulous; about their exquisite beauty there could be no question. It was abundantly evident from what I saw that Monsieur Linden had "struck a particularly rich vein" of *Odontoglossum crispum*. His recent great success, *Cattleya Warocqueana*, which he insists is the autumn flowering *C. labiata*, is revealed in an astonishing range of richness of variety, both in habit of plant, form of flower and in color. As a garden Orchid it is of the very highest merit, being a vigorous grower, and flowering with great freedom even for a Cattleya. Monsieur Linden pointed to the few plants which remained of the thousands he began with as a proof that Orchid fanciers had discovered the beauty and value of this Cattleya.

A house containing several thousand plants of Dendrobiums from northern Australia, all in splendid health and most of them coming into flower, was pointed to with pride by both

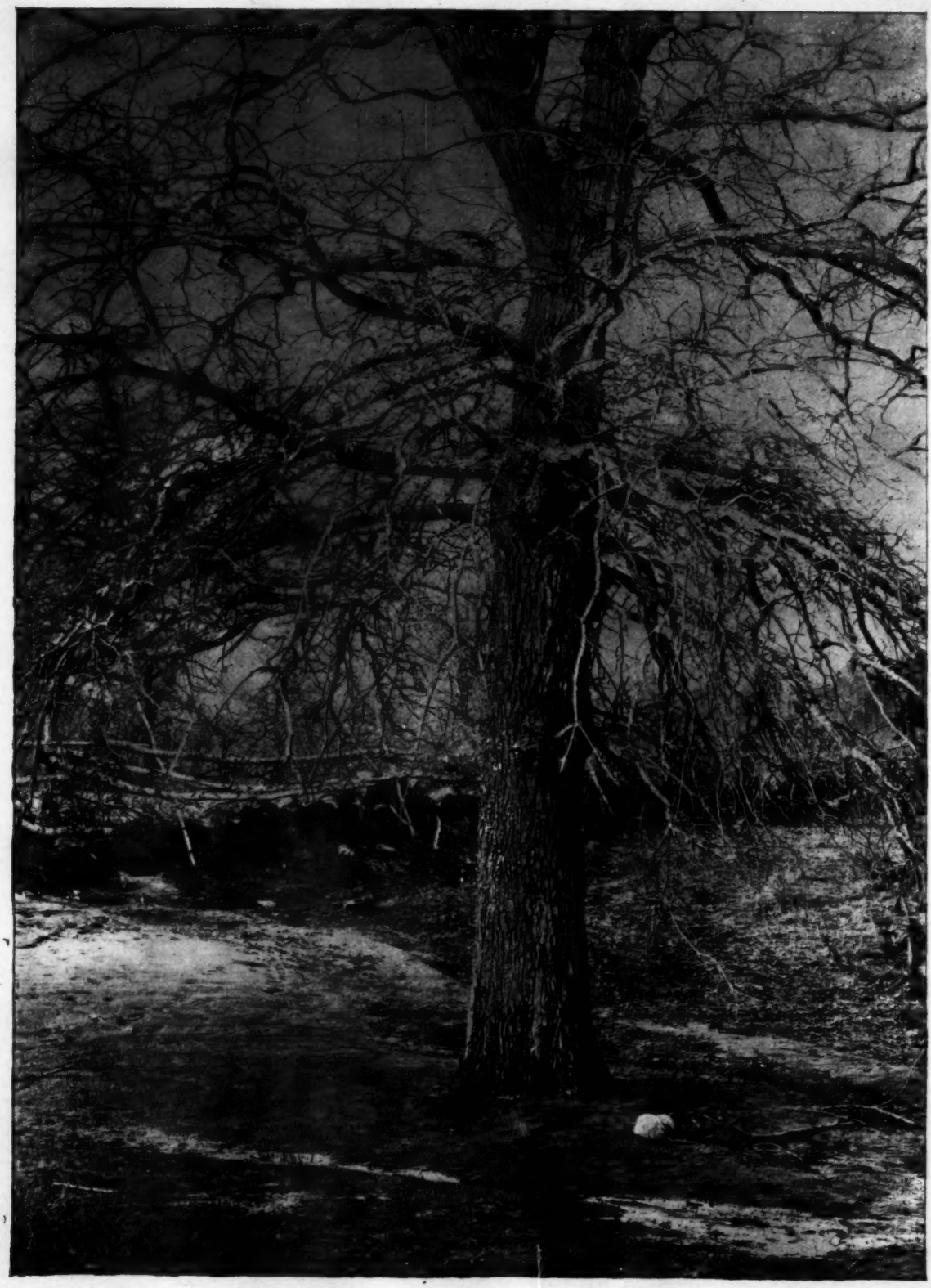

Fig. 44.—A Young Swamp White Oak (*Quercus bicolor*) in Winter.—See page 241.

the veteran Monsieur John Linden and his son, as being likely to reveal some treasures in the way of *D. Phalænopsis*, *D. Goldieana*, etc., before very long. A big batch of *Cattleya Buyssoniana*, another of the new *Coryanthes Bungerothii*, another of *Grammatophyllum Ellisii*, and still another of the new Bornean *Cœlogyne peltasites* followed each other in rapid succession. These may be taken as an example of the richness of the collection which was revealed as we walked through one house after another; they also are evidences of the enterprise of this company in the work of introducing new plants, for in these plants we have new discoveries made by Monsieur Linden's collectors, and under his directions, in Australia, Borneo, Madagascar and South America. At present there are five collectors employed solely in the search for new plants, two others being told off to look after those which are in great demand, such as Odontoglossums and Cattleyas.

Smaller houses contain many rarities such as delight the eye of the connoisseur in Orchids. I noted in them living plants of the beautiful Telepogons, which are certain to rival the best Masdevallias if they can only be induced to stay with us. *Trichoceras muralis*, *Lissochilus giganteus*, *Hæmaria Otleta*, a prettily veined ally of Anæctochilus, *Cattleya Rex*, which Monsieur Linden declares is the most lovely of all Cattleyas, and which has been seen by his collector with fourteen flowers on a spike. *Cattleya Gibezi*, the white variety of *C. superba*; *Odontoglossum Leopoldii*, one of the most beautiful of recent discoveries. I might go on to enumerate all the best Orchids hitherto described, and add to them nearly fifty new ones as yet undescribed, but here growing under Monsieur Linden's watchful eye, and even then I should not have exhausted the list of interesting Orchids to be seen at this nursery.

Although Orchids are the principal plants, there are many others which are objects of Monsieur Linden's special care. Nepenthes of all kinds are grown in large numbers, a large house being entirely filled with them, so far as roof-space is concerned. Stove plants of the choicest kinds, such as Aroids, Palms, Ferns and many flowering plants, are represented by many beautiful species, a considerable number of them being quite new. Monsieur Linden has decided to pay particular attention to this class of plants, which have lost considerably in popular favor, chiefly because collectors have neglected them for Orchids. He has already secured a large number of new things, which, unless I am very much mistaken, are certain eventually to meet with general favor among lovers of exotic plants. At present I can only refer to them thus vaguely.

By their work in the introduction and distribution of plants alone the Messrs. Linden have won for themselves a reputation of the very highest standing among European horticulturists. Besides this, they have enriched the literature of the garden by their publications, of which *Lindenia* is the most meritorious, the *Illustration Horticole* and the *Orchidophile* being also useful to practical men. Monsieur Lucien Linden has also invented a boiler for heating plant-houses which is likely to become a powerful rival to the best of boilers in use at present. It may be described as a combination tubular and saddle, with an arrangement which insures the exhaustion of all the fire-heat before it leaves the boiler, and the economy of fuel. For large structures, where much piping is necessary, this boiler is likely to become popular.

To those who want to look at all the best Orchids grown, as only few can grow them, I would recommend a visit to Monsieur Linden's establishment. Altogether this nursery is one of the most instructive as well as one of the most delightful to be found in Europe.

London. *Visitor.*

Cultural Department.

The Abuse of Insecticides.

GREAT things are evidently anticipated, all over the country, from the use of insecticidal poisons in Orchards, and upon many of our small-fruit plants. There is also a strong disposition to use mineral poisons as fungicides. I am by no means disposed to make objections to any proper and necessary use even of arsenical preparations, when they are not applied directly to the edible product of our orchards and gardens. I am fully prepared to allow that they may be so used, and that no traceable evils will be noted, perhaps for a long time, if ever. I will admit even, that a small quantity of arsenical spray, falling upon green grass, will not be likely to cause any marked effect upon the health of the animals fed upon either the grass or the hay made from it. It may be true that in many cases nothing short of spectrum analysis will show the presence of arsenic in such food. But, nevertheless, arsenic is a very dangerous substance to introduce into the food of man or beast, even in minute quantities. This is fully proved by the many cases of poisoning from inhabiting rooms papered with arsenical papers. The symptoms of this form of poisoning are so very obscure that even the most skillful diagnosticians may fail to recognize them. On the other hand, I will allow that too much has sometimes been made of the danger arising from this cause. With all reasonable discounts called for by these admissions, hundreds of tons of a most virulent mineral poison in the hands of hundreds of thousands of people, to be freely used in fields, orchards and gardens all over the continent, will incur what in the aggregate must be a danger worthy of serious thought.

As for myself, I have decided that I cannot consent to the use of arsenical sprays in my orchards, either as an insecticide or a fungicide. I have no doubt at all that they can be made effective in the destruction of some of our worst insect pests, especially the codlin moth, the curculio and all leaf-eating species. But there are other effective means within our reach, and without the use of these sprays we may still easily supply, and even overstock the markets with fine fruit in all except such very exceptional seasons as last year. The careful grower should be very cautious in the use of this class of remedies. What will be the effect on consumers when it is widely understood that arsenical sprays are in general use in American orchards?

The codlin moth is rather a benefit than an injury in well-managed orchards. Without them our trees would be overladen, and even with their help, thinning by hand is often imperative. True, the moth makes no discrimination in depositing her eggs, and the worms infest the largest and finest as well as the inferior fruits. But still there is enough for the market, and if all orchards were even fairly well managed there would be a large surplus for export in all but the very worst seasons. As for other insects, like the curculio, which may be met and foiled by simple mechanical means, no other method is needed. Plum-growing is really made more profitable to reasonably active growers by these little beetles, and, without the curculio, plums would soon become too plentiful to be profitable, except in the case of the very finest fruit. In the highest interests of orchard-industry, therefore, I hope it will be seen that the direct application of this substance to fruit-trees, after the formation of the fruit, had better be avoided, at least until its necessity is more fully established.

Newport, Vt. *T. H. Hoskins.*

The Influence of Stock upon Cion.

ABOUT a year ago a large number of experiments in herbaceous grafting were performed by a student under the direction of Professor Bailey, and, among others, a trial was made of grafting a portion of a half-grown Dwarf Champion Tomato upon a similar fruit of the Ignotum variety, from which a corresponding piece had been removed. In habit of growth, as well as in fruit, the Dwarf Champion is very distinct from the Ignotum; the former has thick and short-jointed stems, thick, crumpled, dark green leaves, and the fruit has a distinctly purple tinge; the Ignotum is similar in character to the common red varieties. The two parts of the graft united and grew to maturity, after which the seeds were removed and planted, care being taken to keep the seeds of the two halves, stock and cion, separate.

The results obtained from the seeds of the cion half of the fruit, the Dwarf Champion, were very striking; so surprising, indeed, that it was decided to distrust the accuracy of the records of the experiment until it should be confirmed by further trials. Soon after their appearance above ground the plants from these seeds began to show some of the characteristics of the stock. As the plants developed, this resemblance to the Ignotum increased until at maturity both the plants and the fruit which was produced were indistinguishable from the pure Ignotum variety.

The interesting development of this experiment led to its repetition during the past winter, the work being carried on by means of the Tomato-plants growing in the forcing-houses of the Experiment Station. Of the grafts thus made a part were Ignotum upon Dwarf Champion as a stock, the reciprocal of that mentioned above, and from the seeds of the cion half young plants are now growing which again show a very decided influence from the stock, being plainly intermediate in character of leaf and in habit between the two varieties,

thus confirming to that extent the observations made during last year's experiment. The further developments of the plants and their fruit will be looked for with great interest, since, among the many forms of grafting which have been practiced in the past, few, if any, records are to be found of such a preponderating influence of the stock.

Cornell University. *C. W. Mathews.*

Lima Beans.

THE Bush Lima Bean known as Henderson's, while quite small, is enormously productive and of fine quality. It is remarkable how quickly other varieties of this form of Lima Bean have appeared since the advent of Henderson's. This year Dreer's Bush Lima Bean is placed on the market. The seeds look like the ordinary form of Dreer's Lima Bean, and, if as good as this, will be valuable. Lima Beans have been very uncertain and unproductive in the south, while Dreer's always did well. We have another form of Lima of bush habit. These are larger than Henderson's and larger than the old Sieva or Butter Bean of this section. The seeds are handsomely mottled like the Golden Wax Bean, some of them almost as dark as Scarlet Runners. This is possibly a cross with the latter kind, as the blooms are said to be pink. There are two forms of this Bean, one a climber sent by a North Carolina grower, and the other said to be dwarf, and sent by a Georgia seedsman. Henderson's Bush Lima was also of southern origin, having been raised in Campbell County, Virginia. The prospect is that soon all tastes can be suited with bush varieties, and poles will no longer be needed. One of the greatest advantages of these Bush Limas is the fact that most of them are earlier than the pole sorts, so that the season for this vegetable at the north will be much lengthened.

Raleigh, N. C. *W. F. Massey.*

Spring Garden Notes.

THIS spring has proven the most successful season with us in the cultivation of Irises. A dozen roots of *I. Susiana* were purchased in the fall, and these were planted in deep pans and placed in a cold frame; they were often frozen during the severe winter, but they started to grow, and recently bore eight large flowers. After flowering the foliage dies off rapidly. The pans will then be placed in a frame covered with a sash, where they will receive a thorough drying off. In the fall, when signs of growth are apparent, they will be repotted and treated as before. Any one having a cold frame can grow this plant.

Tulipa cornuta is in flower in the border. Its petals are yellow, striped with red, and are long, very narrow and erect. *Anemone coronaria*, the Saint Bridgid strain, are flowering fairly well in an open border, where they were planted in November last, and covered with dry leaves. When the leaves were removed this spring many had already commenced growing, and since then others have come up. There is no doubt that frame-culture is best for them in Massachusetts, but our frames were all filled when the Anemones came to hand. They were imported direct from Ireland, where the St. Bridgid's strain originated, and where I have had the same strain in bloom in the open border every week of the whole winter. The practice was to sow seeds in the spring for the next winter's flowers; in the moist climate, with very little frost, they were almost evergreen, and flowered abundantly, especially in spring. Anemones require a rich, well-drained soil and early fall planting.

Puschkinia Libanotica.—It is a matter of surprise to me that this desirable plant is not better known. It blooms earlier than the Chionodoxa or Scillas, and, to my mind, is prettier than the Chionodoxa. *P. compacta* is said to differ from the type in having more flowers to a stem. The flowers are like little white bells with a blue stripe down the centre. The Puschkinia is as easily grown and naturalized as the Scilla or Grape Hyacinth. Those who want a showy and easily cultivated spring-flowering plant must not forget the *Mertensia Virginica*. We planted a lot of collected roots last fall which came from Iowa, and they are now vigorous and every one is in flower. The Mertensia should, I think, be planted in the same way as the Oriental Poppy, in patches or clumps, as both die down at midsummer. Annuals may then be planted over them to cover the bare ground. Hardy Cypripediums brought on in pans to flower at this time are a great success, especially *C. spectabile*. We use fourteen-inch pans, with plenty of soil, and these hold six to eight crowns. Many of the stems are bearing two well-colored flowers each. There was a fine exhibit of this plant at the spring show in Boston, by Mr. Jackson Dawson. It is not generally known how easy it is to have an Orchid that will rival any of the exotic Cypripediums in its delicate coloring, or we should not be able to buy good strong collected roots of *C. spectabile* at six cents each. *Cypripedium pubescens* and *C. parviflorum* have also done well, but they do not equal the showier species. All these Cypripediums force well year after year, but as much care must be taken of the plants after the flowering period as before.

Spiræa (*Astilbe*) *Japonica* is a good plant for forcing. It does not seem to be generally known that the variegated variety, besides having leaves variegated with golden yellow, has also spikes of flowers that are much more dense and compact, while equally as graceful as the typical variety. It lasts longer, and is altogether a better plant for room decoration and for cutting purposes. It is easily obtained in the fall from dealers and growers in hardy plants. Home-grown clumps of Astilbe give much better results than imported ones, as the buds that contain the flowers get badly bruised in transit.

S. Lancaster, Mass. *E. O. Orpet.*

Musas.

THIS handsome group includes several species and varieties of value for conservatory decoration where space is ample, and during the summer some of them are also useful for out-door tropical effects, for which their bold leaves make them particularly desirable. When planted outside, however, the Bananas should have a somewhat sheltered position, for when exposed to the full force of the wind the leaves are often split and torn. These plants are gross feeders and enjoy rich soil, and respond to liberal treatment generally. Another point in their favor is, that they are but little subject to insect pests, unless surrounded by infected plants of other species.

The true Banana, *Musa sapientum*, is rather too large a plant to be included in a small collection, but the variegated form of this species, *M. sapientum vittata*, is an extremely handsome one, and is not quite so rampant in growth as the type. This variety is perhaps the most striking member of the genus, the leaves being oblong in form and the ground color bright green, on which are many stripes and blotches of white. The fruit is of little value, but when planted out in a warm house, and at the same time encouraged in growth by a moist atmosphere and plentiful watering at the root, it makes a very effective specimen. The propagation of this form is accomplished by means of suckers, which, in common with most of the members of this genus, it produces in moderate number.

The Chinese Banana, *M. Cavendishii*, is quite dwarf in habit, and has been frequently fruited under glass, for when full-grown it seldom reaches more than eight feet in height, and has often been fruited when about six feet. Its leaves are from three to four feet long and one to two in width, forming a rather compact head of dark green color, and the stem is quite stout in proportion to its length. *M. Cavendishii* is also propagated by means of suckers, the latter being thrown up at the time of fruiting, and frequently before this occurs.

M. coccinea is another highly ornamental species, and was introduced from Cochin China many years ago. This species is of comparatively slender growth, and has bright green leaves about three feet long and six inches wide, the entire height of the plant being from four to six feet. The most striking feature of *M. coccinea* is the flower-cluster, which is terminal and about one foot long, and covered with spathes of bright scarlet, making it the most showy member of the genus in this respect. It may be well grown as a pot plant if it be not convenient to plant it out, by giving it a little extra stimulation in the form of liquid manure from time to time.

The Abyssinian Banana, *M. Ensete*, is now well known as a plant for decorative use, either in-doors or out, and is grown from seeds in quite large quantities in some commercial establishments. This is probably the largest species of this genus, the stem sometimes reaching a height of twenty feet, while the leaves are truly immense. The latter are bright green in color, with a red midrib and stem, and stand out boldly in a semi-erect manner. The fruit of this species is of no value except to furnish seeds, these forming the only means of propagation, as *M. Ensete* does not produce suckers. *M. superba* is also a strong-growing species, and bears some resemblance to the preceding, though possibly more compact in habit, and is a native of India. The two last-mentioned are the best species to use out-of-doors, their leaves being tougher than those of most of the others, though *M. Cavendishii* may also be used in this manner if it has not been grown in a close, warm house just previous to removal outside. *M. zebrina*, also from India, is another handsome foliaged species, the

leaves of which are oblong in shape, and dark green in color, irregularly blotched with bronzy red and purple. The stem of *M. zebrina* is slender, and the plant seldom exceeds ten feet in height. Its peculiar coloring makes it an admirable contrast when grown in company with *M. Sapientum vittata*.

There are some eighteen species in all, but those specially referred to are the most useful for decorative purposes, and are all worthy of more extended cultivation.

Holmesburg, Pa. *W. H. Taplin.*

Gypsophila paniculata is one of the indispensable hardy plants, and seeds of it may now be sown. It should be grown in clumps, and, being furnished with long tap-roots, which make transplanting difficult, it is well to sow seed where the plants are to remain. The seed germinates readily, and plants sometimes show bloom the first season, or, in any case, make strong growth before winter. They are usually reliably hardy, and come into bloom in May and June in many-branched racemes of very small, fine, white flowers. Plants in flower are very pleasing, being covered with a mist of bloom. But it is for bouquets that they are of the greatest value, in their ability to blend and harmonize almost any gathering of seasonable flowers. While a cluster of one variety of flowers with their own foliage, properly arranged, is often the most satisfactory floral effect for vases, there is no reason why a varied collection should not be equally effective. Often, however, one finds, after gathering flowers with good long stems, that they do not seem, for some reason, to "compose" well. In such cases it will be often found that a cluster or two of light, small flowers will give the finishing touch to the arrangement, amalgamating the differing forms into a consistent and graceful group. *Gypsophila paniculata* will give a supply of early flowers, while later the Statices may be grown for the same service. *S. latifolia* is probably the best of the hardy ones, the flowers being very lasting. The little dwarf-growing Baby's Breath (*Gypsophila muralis*) is a dainty little hardy annual, which may be used for the same purpose, and is a beautiful front-border plant, where it will perpetuate itself if the border is undisturbed. The florist in early winter grows Stevia to lighten his bouquets.

Iris pumila alba is a light-colored form of the old purple *Iris pumila*, so common in gardens. Like the type, this plant is very hardy and very dwarf. The color is a faded, uncertain yellow rather than white, resembling in effect somewhat, though lighter in color than *Iris chamæiris*, the latter being very slightly taller.

Elizabeth, N. J. *J. N. G.*

Salsify should not be sown too early. It is a plant of very hardy character and germinates quickly. The result is, when sown so early, growth is checked by the hot weather of midsummer, the lower leaves die and many of the plants run to seed. The roots do not attain their best size and become tough and stringy before they mature. The sowing should be deferred until June, in ground that has been well manured for early radishes, beets, or spring spinach. Here and southward Salsify, sown in August, will make a better crop than if sown in the spring, as it will continue to grow until Christmas. Last summer one of my neighbors was obliged to change his residence about the middle of August. He sowed a plot of Sandwich Island Salsify in his new garden, and the result was the finest Salsify that I saw last year. People here are slowly finding out the value of their long temperate autumns, and I think the time is not far distant when, by later sowing and transplanting after the hot weather is gone, we can grow good fall Cabbage. Early sowing, starving through the long summer heat and drought, has brought about the tall-stemmed Collard, and from this Collard, with proper treatment, we will yet get the Southern Cabbage.

Tuberous Begonias are of special value here, for we find that the tubers are hardy and increase in size and vigor with slight protection. It has long been known that the old *Begonia Evansiana* is hardy almost anywhere with slight protection, but it is gratifying to find that this is also true of the showy and constant blooming sorts of recent introduction.

Amaryllis.—A bed filled with various Amaryllis is a very interesting object. The early blooming Atamasco, which has been making acres of woodland here gay for weeks past, is the earliest one to appear. This variety forms the outer edge, while the centre is filled with exotic species and an imposing clump of Johnsonii. This bed is on a sheltered lawn with no special winter cover, and the perfection of the great masses of Amaryllis gives one a new idea as to the hardiness of these bulbs.

Raleigh, N. C. *W. F. Massey.*

The Forest.

Redwood Timber.—II.

ANY estimates of the value of bodies of Redwood over three hundred acres in extent, which place the amount which can be taken off at over 100,000 feet per acre, are misleading, as even that amount is exceptional, and not to be had except by following water, instead of Government section, lines.

By far the larger part of the Redwood lands have passed from Government to private ownership. In Sonora, Mendocino and Humboldt Counties scarcely any good claims are not titled. By the Timber-land Act citizens could buy 160 acres at $2.50 per acre. A few years ago there was a perfect craze for this class of property, and immense quantities were purchased from the Government. Every one who could get the money took a timber-claim. Men who made a business of it located claims for hundreds. In the course of time the original purchasers have usually sold to mill companies or speculators, who are buying to hold as a long-term investment. Still a very large quantity in the aggregate is owned in tracts of 160 acres by persons who live on their land, selling pickets, trees, tan-bark, etc., and having a small area available for pasture, agriculture and fruit-raising. The Redwood soil produces the best of fruit, especially apples, and many comfortable homes are to be found in the forest.

The holdings of the mill companies range from a thousand acres upward, and are of extra fine selections, which have been bought from time to time. The men who are buying for investment also select the best, carefully inspecting all purchases, and some large buyers have all the forest scaled. Among the largest investment buyers are the "Scotch Syndicate," who have secured a very large area at Humboldt Bay, and several Michigan and Wisconsin companies.

A few figures as to the largest ownerships in Mendocino County may be interesting. The Fort Bragg Company own 70,000 acres; The Navarro Company, 35,000; Big River Company, 32,000; Gualala Company, 18,000. In Humboldt County the Scotch Syndicate is credited with 80,000 acres.

Redwood lands are held at from $5 an acre upward. Outside of exceptional locations, valuable from proximity to a railroad or tide-water, or of extra heavy timber, $5 an acre is a fair price, while claims are held as high as $40 an acre. Of the vast quantity that has changed hands in recent years far the greater portion has brought from $4 to $6 per acre, and any quantity of Redwood lands which will cut from 30,000 to 40,000 feet an acre, and which are within twenty miles of tide-water, can now be purchased at $6 per acre. Indeed, they are cheaper than they were a few years ago, because so much is owned by parties who cannot afford a long-term investment, and who are anxious to realize. If the quantity of land available for the use of the mills were limited, the land would be worth from $70 up, on the basis of usual stumpage, but the vast possessions of the mill companies make them independent, and timber-land on those streams can only be regarded as a long-term investment. The exhaustion of the forests east of the Rockies, in the future, with the great growth in population in California, will doubtless considerably accelerate the rate of cutting. At the present rate of cutting, the forest, if protected from fire, would almost reproduce itself before this growth is cut. The vitality of the Redwood is wonderful. From every stump hundreds of sprouts grow, and with great rapidity. In old clearings quite large trees are to be seen of the new growth.

The forest-fires do little or no injury to any but very small trees, but the seedlings coming up through the leaves, and the sprouts from the stumps, suffer, and although they reappear with great vigor, repeated burning finally destroys the life of the stump, and the Redwood charring grows up a tangle of Ceanothus, known as the "Blue Blossom" (*Ceanothus thyrsiflorus*), and only the blackened stumps testify to the once great forest. If forest-fires were prevented, no forest would be more easily perpetuated. Although the Redwood seeds freely, the number of seedlings to be found in the forest is very small. The Redwood in log is practically indestructible. Fallen trees will lie generations without decaying, and such trees are always cut up and sent to the mill. I have seen logs on which mold had gathered and good-sized trees grown, which were perfectly sound and good for lumber. To fire, as well as decay, these logs are invulnerable if sound. It is only when a tree is shattered in falling, or when a rotten heart gives the fire an entrance, that it can make any serious impression. When logging is done by water, the butt-cuts, which are too heavy to float, are left on the ground for several years to dry out, and, although the ground is burned over several times, are uninjured.

The first saw-mills were built in the redwoods in early days. That at Mendocino City was established in 1850, and has been in continuous operation since, with a present cutting capacity of 60,000 feet a day. This company gives a good illustration of the rate at which cutting progresses. It owns 35,000 acres on Big River, or less than half the water-shed. In its forty years' operations it has cut over less than ten per cent. of its own lands. Most of the large companies have been in operation from twenty to thirty-five years, and several have cut a smaller percentage of their timber than the Mendocino company. On the other hand, all of the timber on some small streams, two to five miles long, has been cut, and the mills moved to new locations. The exceptionally large logs, and the steepness of the slopes, give rise to methods of working peculiar to the Redwood industry. The mills are well equipped, and everything at the mill is utilized for which there is a market. In the woods the waste is large.

Oxen are used altogether in the woods, and logging is summer work. For the wood-roads skids are used, which are either greased or kept wet by water-carriers. From three to five yoke of oxen drag several logs attached by dogs and chains. In a few instances slides, or, as they are called here, chutes, are used. The tidal estuaries are used for dams, and a boom keeps the logs in. Redwood-trees have a bulge at the base, and in cutting large trees a staging is built around the base and the trees cut at ten to twelve feet from the ground. Very narrow, long-bladed axes are used by the woodsmen. The thick bark is peeled off before the logs are hauled. As sawdust cannot be dumped into the streams, it is burned in large furnaces. Logs above seven feet in diameter are blasted.

Ukiah, Cal. *Carl Purdy.*

Correspondence.

Are Plums and Cherries of one Genus?

To the Editor of Garden and Forest:

Sir,—The question is not raised with any view to a full discussion of the subject. If read with due consideration as to the meaning of the word "genus," there will seem little room for discussion at all, for it will readily appear as carrying with it its own negation. Each of the two principal terms of the query, as an English word, is simply and absolutely generic. Each calls to mind a natural group of trees and shrubs, and the two groups are so thoroughly distinct that neither orchardists nor botanists have ever in reality confounded them. No one has said that Cherries are only a sort of Plums, or that the Plums are merely so many species or varieties of Cherries. The qualities of the wood, of the bark and of the fruits of the two are so dissimilar, and their natural constitution, as indicated by their refusal to hybridize with one another, is so different that no man, learned or unlearned, ever thinks of them as congeneric. Nevertheless, some learned botanical theorists, under the disguise of a Latin nomenclature, have pronounced them to be of one genus. Prunus is the Latin equivalent of Plum or Prune, and Cerasus of Cherry, and some authors, dropping Cerasus out of their list of generic names, have named all the Cherry species as species of Prunus. This, in spite of the disguise, may clearly enough be read as a theoretical endeavor to make Cherries over into Plums, but that this is an artificial, not a natural classifying of these well-known trees is attested by the fact already alluded to, that the simple, every-day intelligence of men, whether botanical or unbotanical, has never regarded the two as congeneric. The trees have been under cultivation with nearly all civilized peoples from ages almost prehistoric, and there is yet no dialect of human speech in which they have but one term in use for these two kinds (genera) of trees.

It is not my purpose now to name in order those several distinctive peculiarities upon which many of the most eminent botanists, as well as the common judgment of all unbotanical people, have regarded the Plums and the Cherries as generically distinct. But having read, in a somewhat recent issue of this journal (page 180), that the limiting of the genus *Prunus* to the Plums, and the genus *Pyrus* to the Pears (excluding the Apples as a separate genus, *Malus*), is essentially at variance with the views of "most botanists," it has seemed desirable that a few hints of what may be said on the other side of the question should here be given.

The assertion that most botanists have held Plums and Cherries to be of one genus we judge to have been made without forethought; and only a passing review of leading authors is needed to show it erroneous. Of course we do not in scientific matters decide the merits of an opinion by the number of names of men who, figuring as scientists, have at one time and another subscribed to it. The greater number of botanical authors in every generation are, in so far as their systematizing goes, mere disciples of others. Their own opinions upon the limits of genera have no weight; they have, indeed, no opinions not borrowed. Let us see upon what solid strength of authority one may lean—from what illustrious masters one may have borrowed the opinion when he reiterates it, that the Plums and the Cherries are generically different. The following could hardly be objected to as a fair list of names of the supereminently original men who have figured prominently in the history of plant classification within the last two centuries: Ray, Tournefort, Dillenius, Bœrhaan, Haller, Linnæus, Adanson, Jussieu, Gærtner, Necker, De Candolle, Robert Brown and Salisbury. Only three of these thirteen taught that Plums and Cherries were all of one genus, and they were Linnæus, Gærtner and Brown. And I suppose that any well-read botanist of our time, if asked to name the four greatest of these thirteen, would be likely to select Tournefort, Linnæus, Jussieu and Adanson; and of these Linnæus alone would stand sponsor for the opinion that Cherries are only another sort of Plums. The doctrine originated with him. And if, coming down to our own day, we find in the majority of compiled floras and small hand-books the Linnæan extension of *Prunus* maintained, it is also true that in the most elaborate recent monographs of this family *Prunus* and *Cerasus* are held distinct; and so are *Pyrus* and *Malus*. I need only mention the names of Rœmer, Spach and Decaisne, whose treatises upon these plants, unsurpassed in scholarliness, must be in the hands of all who wish to attain to the fullest understanding of the subject. In America, at least in the western part of it, all our native Cherries were first described—some by Nuttall, others by Sir William Hooker—as species of *Cerasus*, not as sorts of Plums; and Asa Gray, in what is, after all, one of the finest monuments remaining to us of his great ability, the "Flora of North America," conforming to that opinion, which has the support of the most splendid array of great names, retained *Cerasus* for the Cherries and *Prunus* for the Plums, though in more recent works he accepted the unnaturally extended *Prunus* of Linnæus.

But still, everywhere outside the technicalities of the most artificial systematists, it is conceded that Plum and Cherry—*Prunus* and *Cerasus*—are generically distinct. Whether the lines of demarcation between the two will ever be so strongly drawn in the set terminology of botany as to satisfy the requirements of artificial systematists is unimportant. All men, without exception, when speaking in their mother-tongue, and the most weighty authorities upon natural classification in the plant-world, even in their Latin, salute the Plum-trees as one genus, and the Cherry-trees as another.

University of California. *Edward L. Greene.*

Southern Mississippi Floral Notes.

To the Editor of Garden and Forest:

Sir,—To one new to the south the flora of the Gulf shore of Mississippi is full of interest as early in the season as the first of May. The spring flowers have finished blooming, and Orchids are seen in profusion. Even from the car-window it was evident that lower Mississippi must be the home of the Polygalas. Chapman gives twenty-two species in his flora, and the most showy of them are now in full bloom here. The two most conspicuous are *Polygala lutea*, sometimes called "Bachelor's Button," with its orange-yellow flowers in dense spikes, scattered everywhere in the grass-land. More than any other plant, this reminds one of the Pine-barrens of New Jersey, where it abounds later in the year. *P. nana* is less abundant, with beautiful lemon-yellow spikes; the flower-stalks are very short. Among the other Polygalas now in bloom may be mentioned *P. incarnata*, *P. polygama* and *P. Chapmanii*. Everywhere in the grass beneath the tall, scattered, spectral, southern Pine-trees is the showy *Phlox divaricata*, with a tint of pink that at first leads one to take it for *Calopogon pulchellus*. Both of these plants flourish near each other, the latter in low wet places.

The two other Orchids most common in the moist places are *Pogonia divaricata* and its close of kin, *P. ophioglossoides*, each equally abundant and beautiful after its own type. These boggy places are full of the showy and peculiar leaves of the yellow Pitcher-plant (*Sarracenia flava*). It is late for blossoms now, but the variegated foliage makes up for any lack of bloom. Two Sundews frequent the same localities, the *Drosera rotundifolia* being sometimes so abundant as to cover the wet sand with a carpet of sticky red leaves. More striking than any other of these glistening fly-catchers is the *Drosera*

filiformis, which attains more than a foot in height, and bears a single flower an inch in diameter each day through the blooming season. The long slender leaves unroll like a watch-spring, and the inflorescence in like manner turns fast enough to bring the opening bud each morning to the upper side of the wheel.

As we pass to the dry areas again the two species of Star Grass, *Aletris farinosa* and *A. aurea*, are conspicuously abundant. They are about equal in size with their strict tall stalks, bearing numerous scattered blossoms, but one is a pure white, while the other is an attractive yellow. In the thickets there is a tangle of *Schrankia uncinata*. This plant is so sensitive that it closes its leaflets at the slightest touch of its prickly creeping stems. Overhead the *Magnolia fœtida* exhibits its gigantic solitary white blooms in striking contrast with the multitudes of minute Ilex flowers that cover the shrubs below. Perhaps the two most showy red blooms are those of the *Æsculus Pavia* and the more rare *Erythrina herbacea*, only one cluster of which we have thus far seen.

Ocean Springs, Miss. *Byron D. Halsted.*

How Dandelions Escape the Lawn-mower.

To the Editor of GARDEN AND FOREST:

Sir,—A day or two after a lawn has been cut with the mower the long, upright stalks of the Dandelion may be seen. The explanation that the stems have been bent down by the machine and left uncut may be true in some cases, but there is a peculiar habit of the plant that is worth noting here. The flower-stalks of this handsome lawn-weed are usually upright until the time of blossoming is past, when they bend outward and downward, and in from three to five days assume what may be called the "scythe-shape," or a double curve, with the head quite close to the turf. Almost any Dandelion-plant, growing unmolested and with several flower-stalks, will show all stages of this downward curving of the stems.

After the depressed stems have remained apparently inactive for from three to five days the period of rapid elongation begins, when they become upright, and the seed-ball is held several inches higher in the air than were the flowers of the same head a week previously. It will be remembered by those who have observed this matter that it is the seed-bearing stalks that quickly appear after the lawn has been mowed. The flowers are first raised for the attention of insects, then comes the reclined repose followed by the second uplifting, that the winds, this time, may bear away the parachute-provided seeds.

Rutgers College. *H.*

Recent Publications.

Description et Emploi des Eucalyptus Introduits en Europe Principalement en France et en Algerie. Second Mémoire. Charles Naudin. Antibes, 1891, pp. 1–72.

The first memoir published by Monsieur Naudin upon the Eucalyptus cultivated in Europe appeared in 1883. Since that time the veteran French botanist has continued his investigations, and has been able to study a much larger number of species in the garden of the Villa Thuret, over which he presides, and in which he has brought together the largest collection of these trees which has been formed; and in the present paper he arranges fifty-six of them in synoptical tables according to the shape of the leaves, the flowers and the fruit, so that the cultivator of these trees will be able now much more readily than ever before to determine the different species, which have always proved extremely difficult to understand from the fact that many of them appear entirely different in their juvenile and adult states, producing at first leaves of one sort and then later in life leaves of an entirely different shape and character. To overcome this difficulty in the study of the genus Monsieur Naudin has made a special Eucalyptus herbarium, in which are represented all the species cultivated in Europe, by specimens taken at different periods of their growth, and showing all the different stages through which they pass from youth to maturity. In these studies it may be mentioned that Monsieur Naudin has brought to light among the plants cultivated at Antibes no less than thirteen undescribed species, now first made known in this memoir, a fact which shows the value of arboreta and the importance of studying trees in a living state, where different species can be compared with each other and their differences noted.

A few brief extracts from the general considerations which form the first part of this work will be interesting, perhaps, to our readers, especially as different species of Eucalyptus are destined to play, it seems, an important part in the future of California, where many of them have long been successfully grown. "The most interesting things," Monsieur Naudin remarks, "about the genus from the cultural point of view, is the rapidity with which certain species grow, a rapidity which is unequaled by any of our native trees, and the quantity of wood valuable for manufacturing purposes and for fuel which they can produce in a comparatively short time. To this advantage possessed by these trees must be added that of being able to support themselves much farther south than most of our forest-trees of Europe, even to the southern limits of the Algerian Sahara, although the region in which they can be cultivated is extremely restricted on the north. There are certain species, however, natives of Tasmania and of the high mountains of southern Australia, which will succeed beyond the Mediterranean region, and which can be cultivated on the Atlantic coast as far north as Brittany, and even in the southwest of England. In countries with warm and humid climates, especially in equatorial regions at the sea-level, the introduction of the Eucalyptus has so far been a failure. There is reason to believe, however, that there are certain species of the intertropical regions of Australia and of the Maylaysian Islands which might be expected to succeed even in the tropics. More than a hundred species are now known, and it is easy to understand that from this number there is a considerable choice to be made, according to the usages for which they are intended. Most of the species are forest-trees, some reaching in a comparatively short time a colossal size. Their principal value, then, is the production of timber, although the value of their wood for fuel is almost as great—a quality which will be appreciated in countries where the absence or high cost of coal is a serious obstacle to the production of metals or to the use of steam-engines.

"Two species may be distinguished among all the others for the rapidity with which they reach a large size; these are *E. globulus* and *E. Mulleri;* and they grow much more rapidly than any of the native trees of Europe. In twenty years these trees attain to the size and height of an Oak a hundred years old. Other species, without growing as rapidly, are still remarkable for the short time they require in which to grow to a size large enough to produce valuable material. Such species are *E. diversicolor, E. marginata, E. crebra, E. botryoides, E. robusta, E. leucoxylon, E. Gunnii, E. viminalis, E. rudis, E. corynocalix, E. rostrata, E. gomphocephala, E. cornuta, E. amplifolia, E. tereticornis* and *E. polyanthema.* The wood of some of these species is exceedingly heavy, and might be used to advantage for blocks for paving the streets of cities."

"The climate is not all that is necessary to insure the successful cultivation of Eucalyptus. The character of the soil is important. Many species, it is true, are not particular in this respect; others, on the contrary, are apparently very fastidious, and if the soil is not suitable to them they grow badly or soon die outright, either immediately after the seed has germinated or in the course of a year or two afterward. It is difficult to say with our present knowledge what they need, although experience seems to show that granite or sandstone soils suit them, as may be seen on the shores of Provence, where such soils are the most common. It is also necessary that the soil in which they are planted should be well cultivated and freed of other arborescent vegetation. The Eucalyptus cannot bear the neighborhood of other trees, disputing the possession of the ground and depriving them of the light of the sun. When it is attempted to grow them in the shade, they become drawn up and give unsatisfactory results. No Eucalyptus can grow on land impregnated with salt, and they all suffer when planted so near the sea that salt spray reaches their leaves. Bright light and a free circulation of air is indispensable to these trees, two conditions made necessary by the large amount of water evaporated from their leaves, for it is well known that the Eucalypti exhale a large quantity of water drawn from the soil drained by their roots. Certain species, particularly those which grow naturally in the most arid regions subject to long droughts, store water in their roots and in the lower part of their trunks, which are sometimes enlarged into a sort of bulb, and from which they draw the water necessary for their existence during periods of excessive drought. It is useless to hope that arid rocky hills can be covered with forests of the large Eucalyptus, which require for their rapid growth an abundance of soil."

"The seeds of Eucalyptus may be planted at different periods of the year, according to regions and climates. With us the best time is the spring—in March, April or May—for if the seed is sown at that time, the young plant will have sufficient strength to support the cold of the following winter. In forming a plantation of Eucalyptus, it is of prime necessity to decide upon the object to be attained, that the species may

be selected best suited to accomplish it. If, for example, it is desired to obtain timber in as short a time as possible, *E. globulus*, *E. Mulleri* or *E. gomphocephala* should be planted. If very heavy wood is desired, then *E. marginata*, *E. rostrata* and especially *E. polyanthema* should be used. If it is a question only of obtaining handsome trees for the decoration of parks or avenues, one would choose naturally the species most remarkable for the beauty of their growth, for the dense shade cast by leaves and by their abundant flowers, such as *E. robusta*, *E. cornuta*, *E. botryoides* or *E. leucoxylon*."

These short extracts will give, perhaps, an idea of the scope and character of Monsieur Naudin's contribution to dendrological science. For the full account of the Eucalyptus, as known in Europe, however, we must refer our readers to the paper itself, which, it seems to us, might with great advantage be reprinted in this country for the benefit of the rapidly increasing class of people whose homes are in southern California, where the cultivation of these trees is every year becoming a more important industry.

Notes.

The Messrs. Putnam are about to publish a "Leaf-Collector's Hand-book," prepared by Professor Charles F. Newhall.

The Russian Department of Agriculture and Farming proposes to introduce the cultivation of the Opium Poppy into the Caucasian region.

Among the pretty names applied by the Japanese to their Chrysanthemums are: "Snow on the Leaf of the Bamboo," "Thin Cloud," "Gold Dragon," "Spray-capped Wave" and "Star-lit Night."

A well of clear water which existed near what is now the city of Dublin was called, in Celtic times, "Fain-Usk," and the name, in a curiously altered form, has been preserved to our own times in that of Phœnix Park.

The Massachusetts Agricultural Society has doubly honored *Spiræa Japonica*, var. *grandiflora*, by awarding it a first-class certificate and a silver medal at recent meetings. It is a new and much improved form of the familiar *S. Japonica*.

Among the most beautiful of the shrubs in Central Park at this time is the Ramanas Rose (*Rosa rugosa*), and especially the white variety. In grace of form, richness of foliage and beauty of flower and fruit, this shrub has hardly a superior.

A correspondent of the *American Florist* writes that the Village Improvement Society of the town of Winchester, a suburb of Boston, has inaugurated the commendable practice of distributing to the school-children flower-seeds and bulbs, with the offer of certain premiums to those who excel in the culture of the same. The children have entered into the scheme with great enthusiasm.

Professor Trelease issues, in a separate volume, from the second annual report of the Missouri Botanic Garden, his revision of the American species of Epilobium growing north of Mexico. Thirty-eight species are described, some of them being now characterized for the first time, and the paper, which is one of the most important of the recent contributions to North American botany, is enriched with forty-eight full-page lithographed plates, showing the habit and structure of the different species.

In that old and curious book, the "Rarities of New England," the Touch-me-not, or Jewel-weed (*Impatiens fulva*), is called the "Humming-bird-tree," and is thus quaintly described: "This Plant the Humming-bird feedeth upon, it groweth in wet ground, and is not at its full growth till July, and then it is two Cubits high and better, the Leaves are thin and of a pale green Colour, some of them as big as a Nettle Leaf, it spreads into many Branches, knotty at the setting on, and of a purple Colour, and garnished at the top with many hollow dangling Flowers of a bright yellow Colour, speckled with deeper yellow as it were shadowed, the Stalks are all hollow as a Kix and so are the Roots, which are transparent, very tender and full of a yellowish juice." Its leaves are declared to be a remedy for the effects of Poison Ivy and to be good for "Bruises and Aches upon Stroakes."

Steps are now being taken by members of the Royal Scottish Arboricultural Society to secure a fund for the foundation of a Chair of Forestry in the University of Edinburgh, and to endow it properly. The subject has been before the society for many years, and has received the cordial support from the most eminent forest-students of the day. During the two last sessions of the University a forestry class has been successfully taught by Dr. Summerville. The interest shown in this course has been considerable, and points to the desirability of establishing in Scotland, on a permanent basis, the study of forestry as a science. Dr. Summerville's lectures have been supported by a grant from the senate of the University, but there is now reason to fear that this aid will be withdrawn unless a permanent endowment fund is provided by local effort. It is thought that $25,000 will be required for this purpose; about $7,500 of this sum have already been received by the University and by the Highland Agricultural Society of Scotland.

From the annual report of the City Parks Association of Philadelphia, it appears that during the past year two parks, Weccacoe Square and Bartram's Garden, have been opened to the public, while two more, Northwood Park and Juniata Park, bid fair to be opened. The final acquisition, after a century of neglect, of Bartram's Garden is an achievement for which all good citizens will be grateful. Four new parks have been placed on the city plan by Councils, and an ordinance was passed last winter providing for grass-plots and the planting of trees along the sidewalks of the streets and avenues of the city, which are seventy feet wide, and over, from house-line to house-line. Other progress has been made in the matters concerning which this association interests itself, and no doubt the work done by it, and the efforts of its individual members, have exercised a marked influence in keeping alive public interest in the necessity of open squares and pleasure-grounds in the city. It is to be hoped that similar associations will be formed in other cities.

The idea so often recommended that winter as well as summer should be considered in the arrangement of country-places, was thus charmingly set forth by Joseph Addison in the *Spectator* for September 6th, 1712: "I can by no means think the verdure of an evergreen comparable to that which shoots out annually and clothes our trees in the summer season. But I have often wondered that those who are like myself, and love to live in gardens, have never thought of contriving a winter garden, which should consist of such trees only as never cast their leaves. . . . When Nature is in her desolation and presents us with nothing but bleak and barren prospects, there is something unspeakably cheerful in a spot of ground which is covered with trees that smile amid all the rigors of winter, and give us a view of the most gay season, in the midst of that which is most dead and melancholy. I have so far indulged myself in this thought that I have set apart a whole acre of ground for the executing of it. The walls are covered with Ivy instead of vines. The Laurel, the Hornbeam and the Holly, with many other trees and plants of the same nature, grow so thick in it that you cannot imagine a more lively scene. The glowing redness of the berries with which they are hung at this time, vies with the verdure of their leaves. . . . It is very pleasant at the same time to see the several kinds of birds retiring into this little garden spot, and enjoying themselves among the branches and foliage, when my great garden . . . does not afford a single leaf for their shelter."

The tenth bulletin of the Central Experimental Farm of the Ottawa Department of Agriculture is devoted mainly to the treatment of the disease known as Apple Scab. This fungus, which has been long known, has come to be so serious in many parts of Canada that orchards of Fameuse Apples which, ten years ago, yielded from sixty to seventy-five per cent. of first-class fruit, now give no more than twenty-five or thirty per cent., the remainder being "seconds" or "thirds." The late Mr. Charles Gibb once stated to the Montreal Horticultural Society that in his orchard the effect of this disease was so marked that his apples brought an average of only twenty-five cents a bushel, while, if they had been free from the spot the same variety would have sold for seventy-five cents a bushel. To this reduction in selling price must be added the loss resulting from diminished size, which is quite as serious, so that the total direct and indirect depreciation of value, when compared with that of first-class fruit, would be about in the proportion of one to four. The bulletin goes on to give an account of the fungus (*Fusicladium dendriticum*), which has been often described, together with an account of experiments to show that carbonate of copper in simple mixture or suspension with water is a very effective remedy. The experiments confirm what has been often stated in these columns, that the application should be made early, that is, the first one should be made before the blossoms open and the second soon after they have fallen. The liquid should be distributed in a fine spray by proper nozzles, and, although the trees do not need to be drenched, they should be completely moistened.

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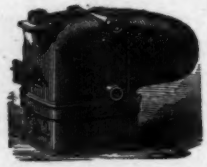

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